Département des systèmes
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CIRAD-SAR

CHOCOLATE,
A PART OF PHILIPPINO CULTURE
ECONOMIC PROSPECT FOR THE "TABLEA"

Mission Report of 7 - 12 December 1993 for PCARRD and USM, Financed by the Frenh Embassy in the Philippines

Francois RUF
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Key words: cocoa, chocolate, tablea, trade, corporate plantation, smallholdings, production costs, Philippines.

Summary: Along with a few countries in South America, the Philippines have maintained a strong tradition of chocolate consumption, transfered from Central America to the Philippines by the Spanish Empire. This consumption is mainly in the form of drinks resembling those made in Europe during the 19th century, for which the fat was not exactred from the cocoa beans. More recently, in the 1980s, a mini cocoa boom took place on Mindanao island, from which this traditional outlet has in part benefitted. This study is concerned with production costs on the corporate plantation and family farms, and the margins made along the succession of trade deals from production to retail sale. The conpetition and complementarity between the "traditional" and "modern" sectors are analysed. The author makes some proposals which would increase the complementarity of this trading channels and promote the "traditinal" market, seen has having a stabilizing influence on the supply.

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CHOCOLATE, A PART OF PHILIPPINO CULTURE ECONOMIC PROSPECTS OF THE 'TABLEA"

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"Chocolate..... is composed, as every one knows, of torrefied cocoa, vanilla and sugar, well ground and well mixed. Every one knows as well that an ounce of thin mixture is dissolved in six ounces of boiling water, and stirred vigorously with a peculiar shaped wooden spatula (called the "moulinet"), until it becames frothy ?. This is how the drink we call "chocolate" is made, we drink it hot, and it is very commonly taken by us. This definition by Mr. Lieutaud, Doctor of Monsigneur le Dauphin, ... remains as exact as when it was published (1770). Cocoa powder first appear in 1828, and this new product soon became aserious rival to the chocolate consumed as a drink. Both types have their fervent partisans today." (Lecoq 1924 p.5).

The citation of 1925, affirming that little had changed since 1770, has not withstood the test of the twentieth century. The definition of chocolate given by Mr. Lieutaud has disappeared from the memories and tastes of the peoples of North America and Europe. The partisan for this "chocolate as a drink" have lost against those of the "cocoa powder", who in turn have lost ground against what European consumers understand and eat as "chocolate": the chocolate bars and chocolate coatings, produced since 1825, when Van Houten invented a hydraulic press ehich could extract cocoa butter. Following Knapp (1920), the English language has adopted these definition: "cacao" for the beans, "cocoa" for the fat free powder, "chocolate" for all the preparations made from cocoa mass from which the butter has not been extracted, the term thus applies to drinks described by Lieutaud in 1770 and as well as to chocolate bars produced by Nestle or Cadbury's in 1994 as well.

The international market was created and transformed by the influence of the technical progress afforded by hydraulic press. The "alimentary chocolate bars" were more adapted to the reqirements of the temperate market because they were easier to store at low temperatures. The new industries incorporated European products (milk, sugar, hayenuts) into it.

In the 19th century, the international market cosolidated the coexistance of a small number of producer countries (not always the same ones), but changing according to their production), almost exclusively given over to exportation of cocoa beans, and of a small number of rich countries , cocoa bean importer, which were developing their chocolate industry. The progressive transfer of cocoa production towards Africa, a continent which had no tradition of cocoa consumption, completed the specialisation and the polarisation of interests. At the end of twentieth century, the cocoa boom of Malaysia and Indonesia, counties with no tradition (or lost tradition) of cocoa consumption, further reinforce this polarisation (confrontation). For most of the producers, cocoa beans have no food value whatever[1].

At last two large American countries, however continued to produce cocoa for their home markets, pursued on traditional modes of consumption, in the manner defined by Lieutaud in 1770. This was the case in Mexico and Columbia. The Philippines are the third big country of this type, in which the production and consumption of cocoa have a very long history, in this case, evidently related to Spanih colonisation.

The main aim of this preliminary study in the Philippines[2] is to show the "tablea" sector is still economically important in the country, and one which could be further developed after retracing the history of this production system, its main characteristics and drawbacks in Mindanao are presented, along with a few proposals for its further development. The underlying hypothesis is that the home market can contribute to stabilize the supply, at present declining. Is there a future for these modes of consumption which seems to come to us stright out of the past ? . Where the importance of turning our attention to the history of cocoa in this region.

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[1] African and Indonesian producers talk about their feelings towards the decline in cocoa prices in the following phase. "We do not eat cocoa". See "Competitivity and Cycles of Cocoa...." (Ruf 1993). However, Malaysia has developed a strong intermediate processing industry (butter, powder, mass) than West Africa has.

[2] Work carried out following a visit to Mindanao, from 7 to 21 December 1993 on the initiative of Mr. Benard, CIRAD delegate, in collaboration witth DR. Cabangbang (USM), who we thank for his constant assistance and remarkable knowledge of the cocoa industry in the Philippines. The mission was financed by the French Embassy in the Philippines for which we are very gratefull to thank Mr. Cardinal and Mr. Dutertre. The management and resembles of PCARRD and USM, in particular L. Oliva, for their help and warm welcome. Among the many people met during the visit, we are specially indebted to Mr. G.B. Bantoc, of Nestle, who was a great help to us in Davao and Sawata.

A BRIEF HISTORICAL REVIEW

Cocoa was introduced to Spain as a consumer good, the main ingredient of a drink, during the conquert of Mexico of 1519 to 1521 (Peeters 1993). After have tried to keep the secret, then the monopoly, the Spaniards saw this product conquer the European aristocracy, and plantation appeared in their respective colonies. The traveller J. Benzoni cited by A. Bourgaux (1935) whose document dates from 1572 writes :

> "I am asked how one could have cocoa in England and the other ingredients which enter into its composition, at which I reply that it would be easy by trading with Spain, from where we can get some, as well as other goods. Itis one of the richest and most necessary of the goods from the Indians, and there is nothing like it for bringing wealth to Chiapas, to where large quantity of sack are brought from Mexico and other places...."

Cocoa was probably brought to the Philippines between 1665 and 1670 by Spanish priest[3]. The variety imported was *criollo*, the most widely cultivated at this periode in Central America and Mexico. It had probably been imported previously from Sonocusco, to the west of the Mexico of today (Clarence Smith 1993).

The inventories of the famous *Manila Galleon* set up in 1565 shut down in 1815, included cocoa produced in Equador, at least in 1810, then importation continued directly from Equador (Clarance-Smith 1993). It is probable that the Manila Galleon regularly brought cocoa from the beginnings of the line, in the 16th century, if cross-winds made the "journeys terribly difficult in the direction Manila-Acapulco, no more than eight to ten weeks of calm sailing were necessary in the direction Acapulco-Manila (Chaunu 1951,1960, map 1). This is sufficient for transporting cocoa beans without much risk of them going

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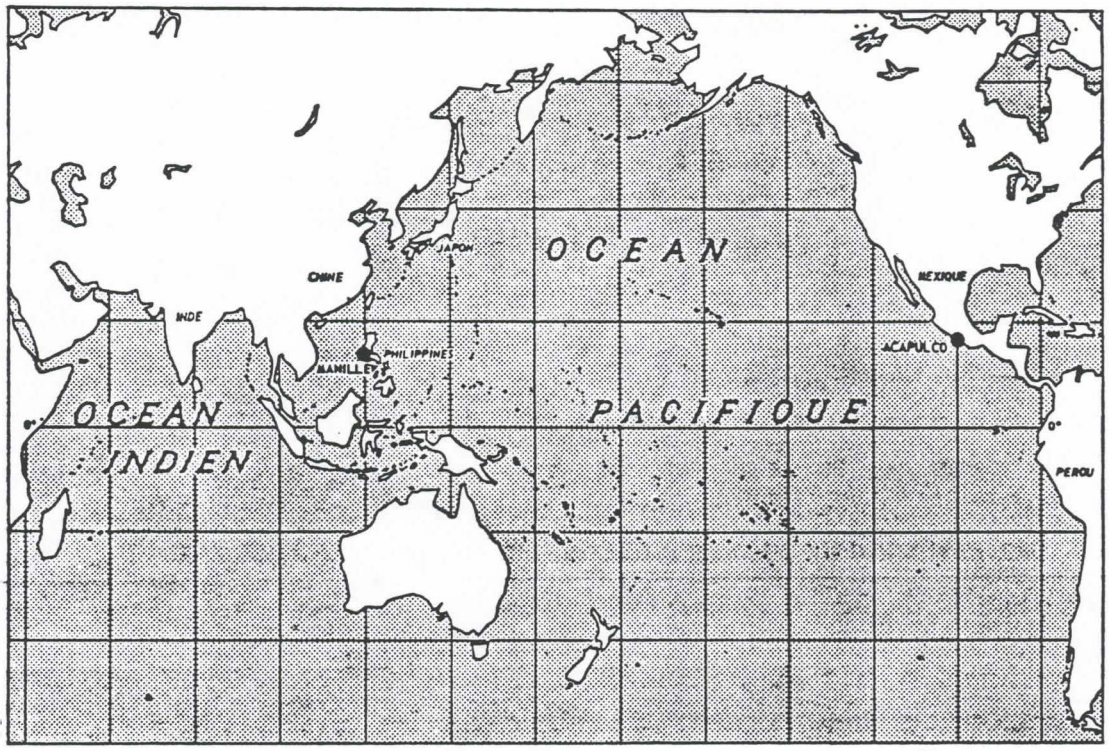
[3] Chocolate was brought to Spain in the 16th century and promptly became popular among the ladies and specially the monks, who developed a strong liking for this aromatic drinks. "The monks of Bayonne (near Spain) were the first Frenchmen to drink cocoa (Bourgaux 1935, Peeters 1993). With less sensuality but as much efficiency, the role of priest is found in the spread of cocoa trees, for example in the Indonesia archipelago, the role of the pastor in the beginning of cocoa in Ghana. Their establishment in rural communities makes them natural vectors for agricultural innovation. Every one in every periode priests and monks (and pastors in anglophone Africa) have played an important role in the introduction and spread of cocoa, as a consumer product and as a new crop in the colonies. More than once, the hierarchy of the Catholic Church has become concerned about the good and bad effect of this drink, so appreciated by the Spanish ladies.... and by the monks (Bourgaux 1993 citing by Father Escobar.)



sources: BERTIN, BONIN, CHAUNU 1966

Map 1 : "Philippines and Spanish Pacific Ocean".
Manila-Acapulco by the famous Manila galion

mouldy or being spoilt. It is more difficult to transport plant material, which may explain theintroduction of cocoa trees in 1665-1670.

During the 19th century cocoa production developed in the islands of the Visayan Sea and Luzon. It is possible that the end of the Manila Galleon and Mexican independence contributed to the development of cocoa growing, as a response of Spanish Philipino concerned about their supply source[4].

Production expanded[5] mainly to supply the needs of the home market in the Philippines, which very rapidly spread from the society of Spanish colonists to the whole population. Even in the Sultanate of Sulu, which was virtually independant, consumption of cocoa was high. In the 1870s, a British naturalist lists the cocoa tree among the main crops of the island, and notes: "The cocoa-yielding *Theobroma* does equally well and fruits freely, forming indeed what may be called the national beverage in Sulu" (Burbidge 1880 p 221). During our inquiries in December 1993, we too obtained several statements agreeing to the existance of *criollo* trees in several regions of Mindanao early this century.

This short history shows that the cocoa boom of 1990s, is an epiphenomenon compared with three centuries of cocoa production and consumption in the Philippines. We shall now examine cocoa consumption in the Philippnines.

Since the invention of the hydraulic press in about 1828, modern cocoa consumption is of two types, chocolate, in the form of bars, in which cocoa butter predominates (to which the product of the ground beans, or mais is added), and powder, dispersable, from which the fat matter has been removed. This powder is mainly for mixing with milk to make the "cocoa" drink at breakfast, snacks and supper.

In the Philippines, the "tablea" are the traditional form of cocoa consumption, in which the butter and powder are not separated. The cocoa beans are lightly grilled, hulled, then ground in the small home-made mill (manual or with a diesel motor). The paste obtained is poured into wooden moulds, which

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[4] The hypothesis on the role of the mexican independence comes from W.G. Clarence-Smith, who is working on this subject at present (pers.comm)

[5] Production in the Philippines developed, but apparently not sufficiently, since at the beginning of the 18th century, Chinese traders come to buy cacao on the North coast of Mindanao and this sparked off a mini cacaco boom in this part of Sulawesi and later in the Moluca Islands (Topoxeus/Wessel 1983, Clarence-Smith 1993, Ruf 1993)

are like planks with hollows carved out the size of a large coin. In fact, "tableas" look like chocolate coin ! More precisely are pieces of crude chocolate. They are used as a base for a drink made following a simple method which none-the-less requires a bit of work : slowly melt the crude chocolate in hot water, add sugar, (unrefined cane sugar if possible), and beat vigourously in order to make an emulsion and a frothy head which is attractive to the eye and agreeable to the palate. This description greatly resembles that of Lieutaud in 1770, and more generally, those receipes described between the 16th and 18th centuries in Central America, Mexico and Europe.

It is important to note that the beverage is generally prepared with water and not milk, or with just a drop of milk added. Labat (1742) (cited by Peeter 1993) specifies that cocoa, "when prepared with milk, as sometimes in the case, is too thick, too rich, and extremely difficult to digest.".

It is as if the "modern" consumer, having forgotten the water, and having adopted milk, has replaced the cocoa butter with milk fat. The market, villages and towns of Mindanao perpetuate a type of consumption practiced by the Aztec aristocracies and the European aristocracies of the 16th to 18th centuries. The beates used in Mindanao to whisk the drink resemble the the "mills of diverse forms to make the chocolate frothy "described in the work of De Blegny in 1687 (cited by Lecoq, 1924 and Bourgeaux, 1935). Among other preserved ruler, the mixture with milk remains rare and parsimonious. The mixture with water makes a much more easily digested beverage, to the point that certain people in the past esteemed that it helped digestion.

After the fears of the Catholic hierarchy about such a "sensual" beverage, after the conflicts between doctors in the 17th century - supported and opponents of this food-medicine, cocoa still incites position passion and interest today. As Peeter (1993) emphasized, chocolate is forbidden in many diets but is already sold in the form of "diet cholcolate" at the price of de luxe chocolate. According to the same author, "chocolate has never been a neutral substance, neither now, nor in the past. In spite of its wide distribution, the role of chocolate as a symbol of pleasure remains intact .

This short trip into the history of cocoa, while leading up to a certain modernity, has the definite aim of suggesting that there in a future for tablea in the Philippines.

THE "BEANS" AND "TABLEA" TRADE IN MINDANAO

Cocoa beans and tablea are found in the markets and all the stalls selling basic foods. Cocoa beans sit on the shelves next to the different rice varieties and basins of flour. The prices are indicated as for peas or nails. Each market has an area for the preparation of chocolate drinks, all competing but apparently in agreement over prices. On the outside, one, two or three professional grinders accept coconuts as well as cocoa beans.

Cocoa in part of the social culture. This is unique in Asia, and unheard in West africa. It is truly a heritage from Central America, transmitted by the Spaniards.

The large priviate corporate plantation resemble the "haciendas" of Spanish practice, but Mindanao was influence very little by Spanish colonisation. These large plantation have more a recent history. The Japanese invasion and its requirement to abaca fibres played a role. Individual and private corporate group investment in so-called "modern" and capitalist agriculture was strongly encouradged by the Marcos regime in the 1960s-1970s. Along with this corporate plantation, the majority of family smallholding farms are also recent. The tropical forest of Mindanao is hardly more than a memory now, whereas in 1930 it was almost untouched. The migration from the Visayas towards Mindanao, partially encouradged by the American administration, really begun in the 1930s, developed during the 1950s, and has not stopped.

Although evidence can be found for the presence of cocoa trees on Mindanao along time ago, including in the Sulu archipelago (cf reference cited above), the cocoa boom arrive in the 1980s, following the historic high in international prices in 1977. A precursor, Rosalio Batal, descended from the migrants from Visayas, got interested in a few dozen *trinitario* cocoa trees planted by his grandfather during 1960s[6]. He selected what he considered to be the best of them, planted experimental plots of a few dozen trees, and set up his own plantation in 1974. Three years later, his first harvest coincided with the all-time high in international prices. The two sectors, family and corporate plantations, followed his example and started up in this "new" culture in the late

[6] Anecdote: according to R. Batal, these Trinitario were all from a single pod found at an airport by the son of a friend of the family. A passanger had been travelling with a sack of pods which has split open. Fascinated , the youth picked up a pod and took it back to the village. The first beans soon gave rise to the first two cocoa trees. All the Trinitario planting material distributed over Mindanao afterwards came from these two parent trees. This type of "anecdote" on the accidental spred of cocoa is frequent in the history of cocoa.

1970s [7].

PRODUCERS AND PRODUCTION COST

Without claiming to be exhaustive, table 1 and 2, based on real cases[8] give approximate production costs, and, more importantly two differences: (**a**) the difference in costs between a private plantation, based on paid labour, and those of a family enterprise, also drawing on paid labour, but on the basis of contracts with greater flexibility; (**b**) the difference in costs between running a "modern" intensive, high input plantation, and of running a more extensive plantation with marginal inputs, and hence minimal outlay.

When cumulated, the differences are very great, 12 to 14 pesos/kg for a family farm on which the only treatment is to limit the attacks of pod borer[9] by treting a proportion of the pods, producing up to 500 kg/ha; 28 pesos/kg for a prifate plantation of 100 ha. maintaining a yield of 1000 kg/ha at the price of heavy spending on fertilizers, insecticides and paid labour.

In both cases, these are "critic" costs. Both units have known higher yields but at times when their production costs were also higher.

As in all cocoa-producing countries, and inspite of the attacks of pod borers and the economical difficulties of the family farms to control this insect,

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[7] The subject of the recent boom in Mindanao will be treated in more detail in "Cocoa Cycles in Mindanao" by Ruf and Ardhy (in Preparation).

[8] The family plantation presented in table 2 is a typical with respect to the organisation of work, since share cropping, although common in most producing counties, seems to be the marginal praetice in the family plantation in Mindanao. In the case of this farm in Bukidnon, the grower appears to benefit from the isolation of this plantation, which means he dominates the local market and can ask higher prices than at Davao, 25 pesos/kg. This gives him the possibility of speculating with the cost of paid labourers. Nevetheless, the example was retained since it illustrates the advantages of simplification and, paradoxically better guarantees the estimation costs. Costs varying from 12 to 18 peso/kg according to the amount of treatment given to the plantation have been confirmed in several other family farms in Davao.

[9] Pod borer or "foreur des cabosses" *Conopomorpha crammerella*: insect widespread in S.E. Asia, probably endemic to central Sulawesi (Indonesia), already present prior to the introduction of cocoa. Eggs are deposited on the pods, and the larvae perforates the surface and bore through to the pulp, provoking callous formation around the beans, which harden into. The beans are no longer saleable. Without a mass treatment, over 90 % of the beans are lost. Map 2 gives its distribution in S.E Asia.

				/ha Current pesos	/kg Current pesos	(%)/ direct costs
OUTPUT						
Product	Unit	Unit Price (1) pesos/kg	Vol. kg	Output	Output	
Cocoa beans	kg gr.I/II	30	1000	30000		
	rejects	20	200	4000		
	average	28.33	1200	34000		
INVESTMENT						
From land preparation to tree plantings, including shade trees (Ipil Ipil) (1979 to 1983)				70000		
Weed control & Maintanance year 2 & 3				3900		
total Investment				73900		
Amortization/year on 25 years				2956	2.46	
INPUTS						
1/ Fertilisers						
Urea	!					
Complete	!	450 gr/tree				
Amonium Phosph.	!	1100 trees/ha				
Potassium	!					
Magnesium	!					
global cost	213800 pesos/100 ha			2138	1.78	8
2/ Pesticides						
Pod borer control						
Decis (1000 pesos/litre)						
10 rounds of spraying/year				5800	4.83	22
3/ Bactericides						
caterpillars control				600	.50	
4/ Herbicides						
Round up	Jerrycan 4 lt	1300	.5	650	.54	
5/ Other sprayings and						
Sprayers maintenance				600	.50	
total Inputs				9188	7.66	35

sources: survey F.Ruf/W.Ardhy, dec.1993, Mindanao

table 1:: Estimated Production Costs of a Corporate Plantation
(a) Estimated Investment and yearly purchases of Inputs
Hectarage of Cocoa: 100 ha

		Costs /ha Current pesos	Costs /kg Current pesos	(%)/ direct costs
LABOUR				
1/Prunning & spraying:				
Permanant workers	29			
number of working days	300			
Labour (pesos/day)	92			
cost	800400	8004	6.67	
social costs (7%)	56028	560.28	.47	
hidden costs (10%)	80040	800.4	.67	
total cost	936468	9364.68	7.80	36
2/ Fertilising				
4 rounds x 1 manday/ha x 92 pesos/day		368	.31	1
3/ Harvesting				
0,04 pesos/harvested pod				
Loss of pods: 40% (Pod borer & other P&D)				
estimate 55 pods to get 1 kg dry beans				
cost: 55 x 1200 x 0,04		2640	2.20	10
4/ Pods breaking				
0,25 pesos/kg fresh beans				
Loss of beans: 30% (Pod borer impact)				
estimate ue to the losses:				
28 kg dry beans from 100 kg fresh beans				
cost: 0,25/0,28 /kg		1071	.89	4
total labour costs		13444.11	11.20	52
5/ Transportation and others		1100	.92	4
6/ Post harvest costs				
fermentation & drying				
1 permanant worker				
transportation of wood				
(from shade trees + corn straws)				
direct costs		2300	1.92	9
Total direct costs		24932.11	21.69	100
Amortization costs				
Planting		2956	2.46	
Post harvest indirect costs including				
Amortization of the Processing unit		1000	.83	
total amortization costs		3956	3.30	
other indirect costs:				
management & general charges		3500	2.92	
TOTAL COSTS		32388.11	27.91	

sources: survey F.Ruf/W.Ardhy, dec.1993, Mindanao

table 1:: Estimated Production Costs of a Corporate Plantation
(b) Labour, Post-harvest and Amortization Costs
Hectarage of Cocoa: 100 ha

				/ha Current pesos	/kg Current pesos	(%)/ direct costs
OUTPUT						
Product	Unit	Unit Price (1) pesos/kg	Vol. kg	Output	Output	
Cocoa beans	kg	25	520	13000		
INVESTMENT						
30 years old cocoa farm						
No Amortization costs				0	.00	
INPUTS						
1/ Fertilisers						
free manure from cattle				0	.00	0
2/ Pod borer control by bagging						
40,000 pods covered by plastic bags / 3 ha						
35 pesos/ 1000 plastic bags						
Plastic bags	40,000 x 0,0035 / 3			467	.90	7
total Inputs				467	.90	7
LABOUR						
share-croppers paid by 33% of fresh beans				4290	8.25	63
weeding control by the owner 10 days x 70 pesos				700	1.35	10
Total labour				4990	9.60	74
5/ Transportation and others				520	1.00	8
6/ Post harvest costs						
fermentation & drying						
direct costs	familial labour			780	1.50	12
Total direct costs				6757	12.99	100
Amortization costs						
total amortization costs				0	.00	
other indirect costs:						
5 days of supervision /ha x 70 pesos/day				350	.67	
TOTAL COSTS				7107	13.67	

sources: survey F.Ruf/W.Ardhy, dec.1993, Mindanao

table 2: Estimated Production Costs of a Cocoa Farm (3 ha) in Bukidnon

the case of the Philippines demonstrates unequivocally two fundamental principles:

* No ecomonies are made when cocoa production is scaled up. Cocoa growing remains fundamentally an activity of family enterprises.

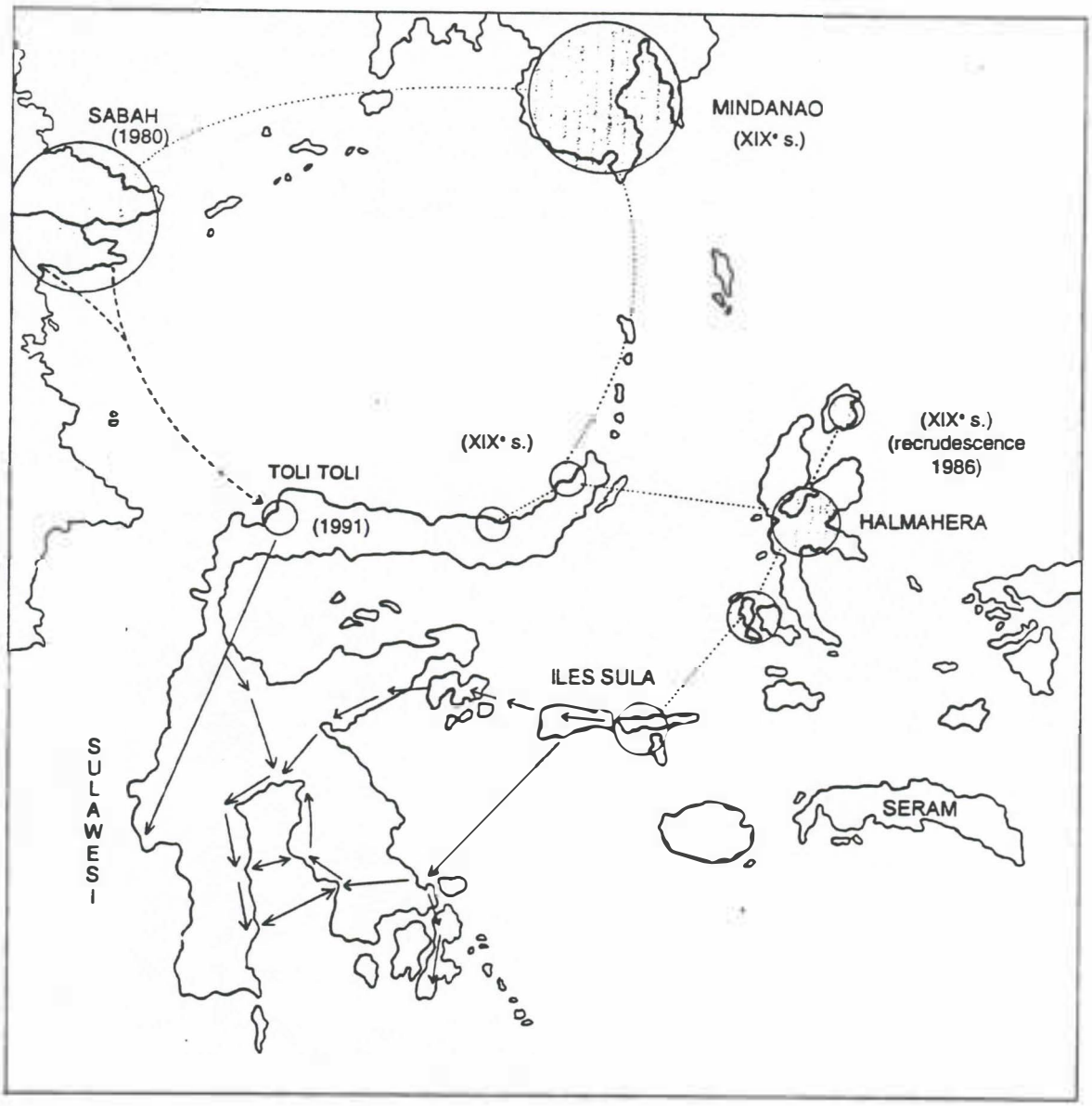
* The concept of "modernisation of agriculture and "intensification" are difficult to apply to cocoa growing, since increasing yields by relying on inputs, far from strengthening the enterprice makes it vulnerable to the slightest crisis in the market. Without entirely rejecting the use of inputs (for the moment necessary to reduce the losses due to pod borer), the comparison between the corporate plantation and family farms clearly shows the necessity to keep their use to a minimum. As for investments, the burden of fixed costs and their repayment must be reduced. This is one of the strengths of the family farms. It is the lesson, learnt, once again, by the corporate plantation, at their cost[10].

Finally as regards the cocoa pod borer which is without doubt the main factor limiting cocoa production in the Philippines, this comparison of costs via period of crisis indicates a direction for research : innovation.

The protection of the pods with plastic bags is less onerous and presents fewer risks than insecticide treatment, since the cost is only 1 peso/kg. For the small farm, family labour or the system of share cropping mean that cash outlay is avoided. In spite of the reticence of the majority of family farms to use plastic bags, considered too demanding a technique, R. Batal continues his search for innovations. He is trying to select plants in the basis of pod size and total bean weight per pod. This is one solution he is reputed to have identified cocoa trees which produce 1 kg saleable cocoa from 18 pods, compared with the 25 to 30 pods usually required. Such a solution would help to reduce the cost of using plastic bags.

The principle of selecting on this criterium is very old. The different norms found in Brazil early this century by one of the great cocoa experts, Zehnter, are presented in annex II. But this selection criterium has been largely disregarded, or used with insufficient understanding of the genetical background. R. Batal has set off on a path to which research institution could make a usefull contribution. Without being able to see where this path will lead, it demonstrates

[10] Curiously, certain corporate plantation in Mindanao had maximized the fixed costs, by "inventing" pseudo-automatic conveyor belts for transporting pods for example. This type of spending in a burden on the productivity of the whole enterprise.



Carte 2. — Carte des diffusions possibles du *Conopomorpho cramerella* dans les plantations de cacaoyer au Sabah (Malaisie), à Mindanao (Philippines), aux îles Sebatik, aux Moluques et à Sulawesi (Indonésie)

(1980) Période d'apparition du foreur des cabosses dans la région

Foyers du foreur des cabosses

Voies de diffusion possibles aux XIXème et XXème siècles à partir des foyers probablement endémiques de Sulawesi Nord et de Halmahera

----- Diffusion probable depuis le Sabah et les îles Sebatik jusqu'à Toli Toli, entre 1983 et 1990

—— Diffusions possibles à Sulawesi Selatan (sud) et Sulawesi Tenggara (sud-est) entre 1993 et 2000 ?

Sources : observations et hypothèses de l' auteur en 1993

Map of possible pod borer (Conopomorpha cramerella) *dispersal in the cocoa plantations of Sabah (Malaysia), Mindanao (Philippines), Sebatik Islands, Moluccas and Sulawesi (Indonesia)*

(1980) *Period of pod borer appearance in the region*

Pod borer foci

Possible dispersal routes in the 19th and 20th centuries from probably endemic foci in North Sulawesi and Halmahera

----- *Probable dispersal from Sabah and the Sebatik Islands to Toli Toli between 1983 and 1990*

—— *Possible dispersal to Sulawesi Selatan (south) and Sulawesi Tenggara (southeast) between 1993 and 2000 ?*

Sources : authors observations and hypotheses in 1993

the dynamism and efficiency of family farms. R. Batal, descended from migrants, farmer, was at the origin of the 1980s cocoa boom in the Philippines. Managers and technicians from the corporate plantation all took their inspiration and plant material from him. He is also the inventor of the method of protecting the pods with plastic bags, adapting a technique used on mangoes.

Innovation often stem from a few family farms, firmly set in the real world, (unlike agronomical research), well placed to quickly identify any problem and to decide with rapidly on any changes or possible experiments.

This is sometimes an advantage over the large corporate plantation, which can not rival the knowledge a small holder can have of "each" of his cocoa trees...from whence the utility for research institutions to work on the real world and not only in "controlled" conditions (and that not always so well controlled...)

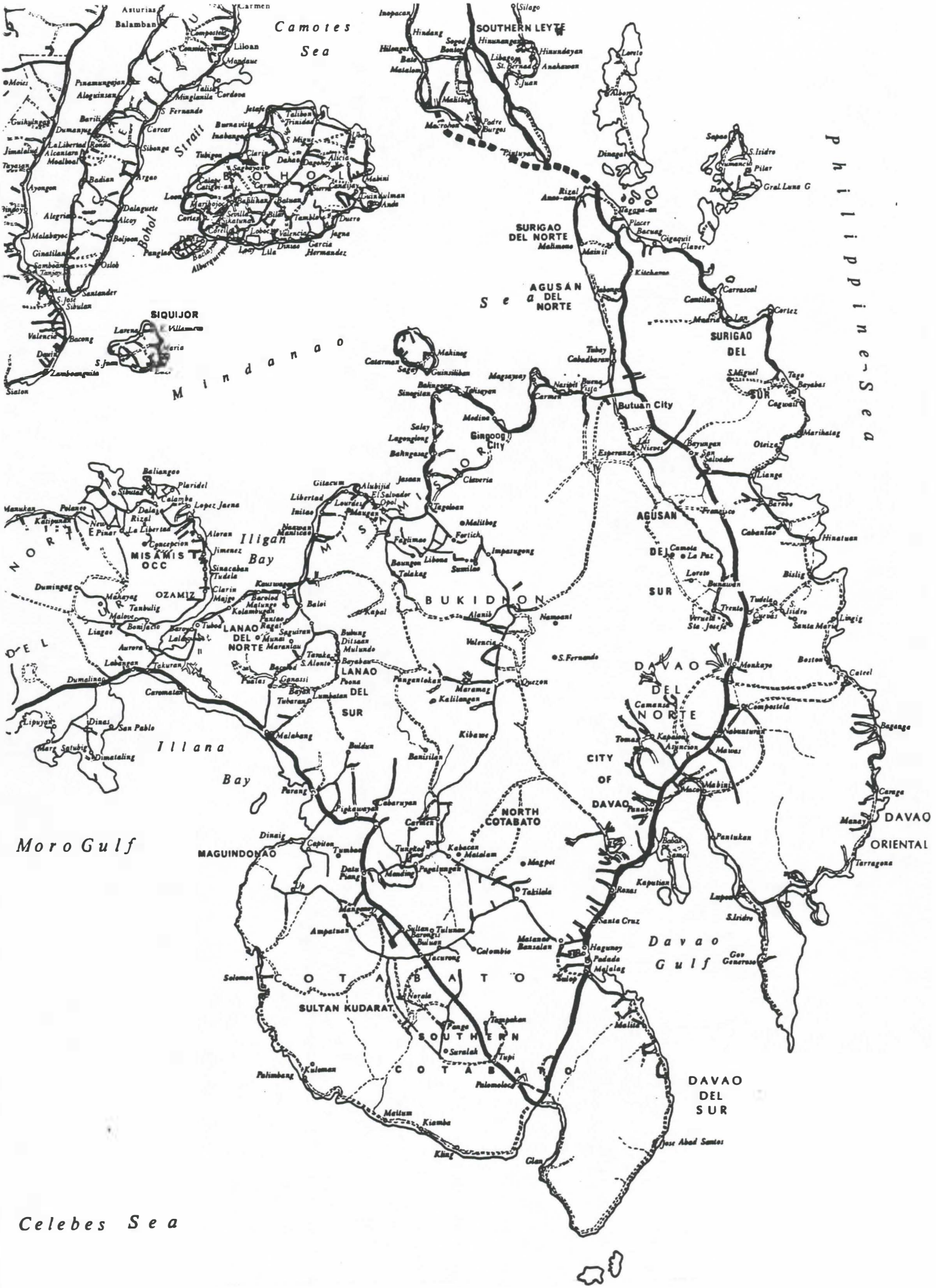
DECRIPTION OF THE MAIN TRADING CHANELS.

Figure 1 and map 3 present a schema for the principal trade routes from producer to consumer, observed in December 1993. They were probably the main trade routes in 1993. This information should be back up by surveys in all the zones of consumption, especially in the Visayas.

Production is atomised between thousands of growers, in several regions with however major production zones in Davao region for the corporate plantation and in the hills of Davao del Norte for the family farms. Consumption concerns millions of people, of which probably the majority are found in the Visayas, and notably in Cebu and Bohol. Between these producers and consumers, between Davao del Norte and Bohol, in spite of existance of the telephone between towns, the means of communication and information are still limited. In these, fairly classical, conditions, it is not surprising that the sales networks are characterised by a large number of "middlemen", an average of three between producer and consumer. Big middlemen invest in means of communication shuch as radio and cellular telephones.

Another rule seems to be followed by the trading chanels in the Philippines. The sales network often seems to walk according to family relations, with a buyer in Cebu, brother, sister or cousin of him or her in Cagayan de Oro or Davao, with the family groups sharing the work in Bituan...

We have however noted that the buyers in Visaya are tending towards closer links with the centres of production, in attempt to by pass the intermediaries in Cagayan de Oro, Bituan and even Davao. In this way, buyers


Camotes Sea
Bohol Strait
Mindanao Sea
Philippine Sea
Iligan Bay
Illana Bay
Moro Gulf
Celebes Sea
Davao Gulf
SOUTHERN LEYTE
SURIGAO DEL NORTE
AGUSAN DEL NORTE
SURIGAO DEL SUR
AGUSAN DEL SUR
SIQUIJOR
BOHOL
MISAMIS OCC
MISAMIS ORI
ZAMBOANGA DEL NORTE
ZAMBOANGA DEL SUR
LANAO DEL NORTE
LANAO DEL SUR
BUKIDNON
CAMIGUIN
DAVAO DEL NORTE
CITY OF DAVAO
DAVAO ORIENTAL
DAVAO DEL SUR
NORTH COTABATO
SOUTH COTABATO
SULTAN KUDARAT
MAGUINDANAO
Butuan City
Cagayan de Oro City
Iligan City
Dipolog City
Dapitan City
Pagadian City
Zamboanga City
Isabela City
General Santos City
Tacurong
Kidapawan
Digos
Mati
Tagum
Panabo
Samal
Island Garden City of Samal

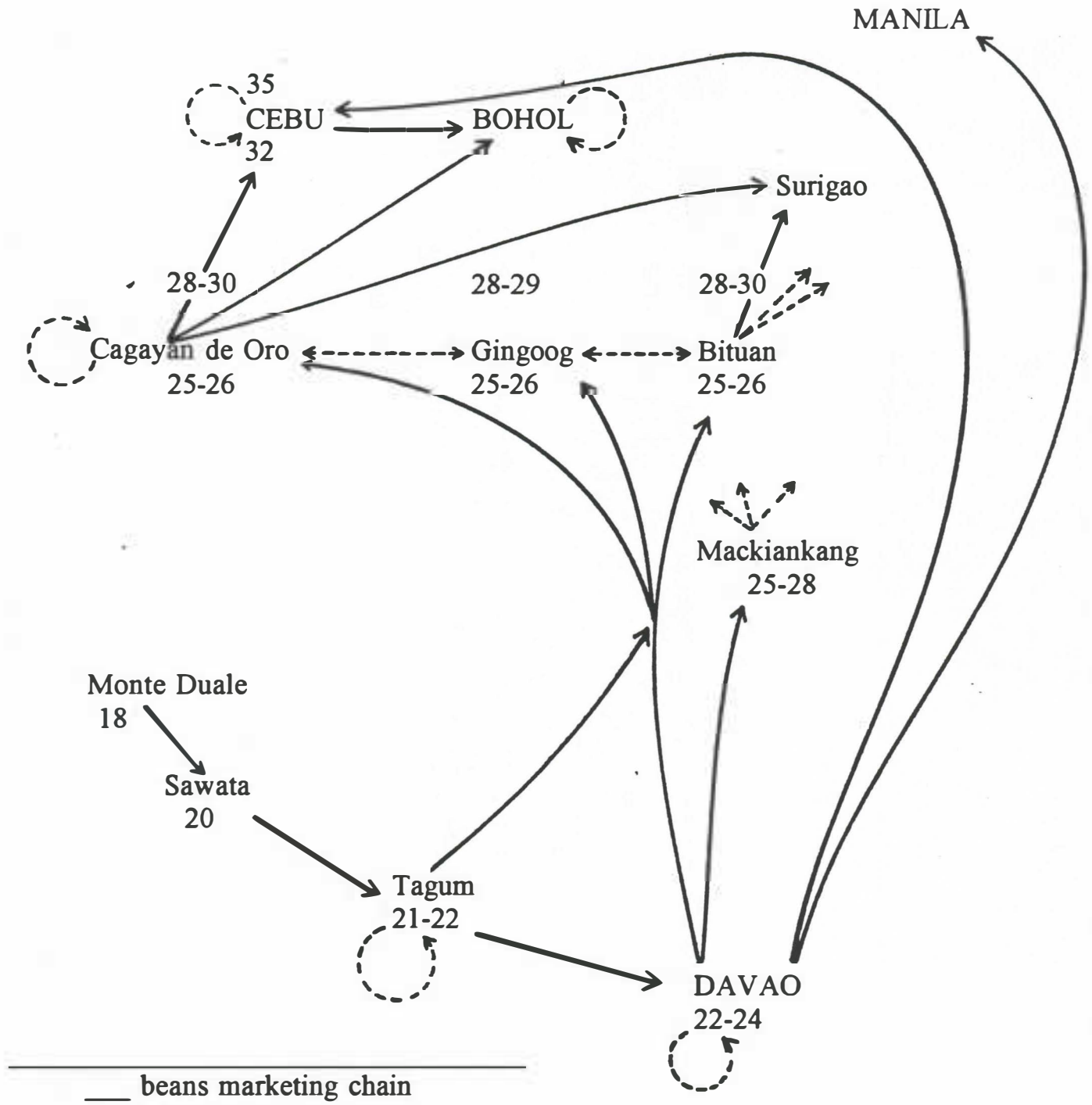


Figure 1 : Marketing chains of cocoa in Mindanao, among the most important. Prices collected in December 1993, for unfermented but sorted beans.

from the Visayas, having identified Sawata as one of the centres of production, go directly to this village. The buying is so regular that the flow of cocoa between Sawata and Davao is sometimes reversed. During the low production season, at least one intermediary from Sawata will buy cocoa from middlemen in Davao in order to cover an order from a buyer from Bohol.

In Mindanao, the small quantities dealt with by each middleman implies the total absence of specialisation. In the heart of the production region of Davao del Norte the cocoa trading is the main activity of the first buyers, but it is combined with much activities for suplying essensial commodities. Further down the line, shuch as in Tagum and Davao, the activity of the middlemen are highly varied diversified. Cocoa is just one product among others. In Cagayan de Oro or in Bituan, cocoa is only a secondary activity.

QUANTITIES

Apart from its traditional sales network, the Philippines cocoa sector is characterized by having a much larger and more than modern processing industry would be expected from its production. This leads to import and re-export of process goods, a circle which complicates the consumption estimates.

The following figures, for 1989, collected by A. Gouyon (1993) give an initial estimate.

(a) Surface planted (ha)	18,215
(b) Production (tonnes)	9,364
(c) Mean yield (kg/ha)	500
(d) Exports (tonnes)	7,215
(e) Imports (tonnes)	8,727
Consumption estimate (b) + (c) - (d) (tonnes)	10,873

The share of each sector in these global estimates remains to be identified. In the absence of statistics in the consumption of the tablea, which may be included in the 10,800 tonnes or added to it, estimates are rather risky.

a) The strongest tradition of tablea consumption seems to have been maintained in the Visayas, which has a population of 15 millions. For the population most accostumed to cocoa, such as those of Bohol, several shopkeepers assured us that half the population stiill drank a glass of chocolate

a day. The other half of this population seems to have dropped the habit in favour of instant coffee because it is cheaper and easier to prepare. If 5 million people still drank a glass of cocoa 300 days per year, the consumtion would reach 7,000 tonnes per year.[11]

b) Prior to the cocoa boom of the 1980s in Mindanao, due mainly to the corporate plantations, the official production of all the Philippines was about 3000 tonnes (late 1970s). A large part of this production must have been taken up in the market for the tableas.

c) In 1991-1992, the production of the corporate plantations varied between 9 to 10,000 tonnes and we estimate that family plantation produced almost 2000 tonnes. In 1993, the production of corporate plantations must have fallen below 8000 tonnes. The production of family plantations must also have slumped, because because certain growers had abandoned their plantations following attacks from the pod borer and black pod rot; cocoa prices being too low for them to afford treatments against the insects and diseases[12]. According to our survey, in 1993, at least 20 % of the production from the corporate plantation goes to the tablea market, ie. nearly 2000 tonnes, to which may be added about 70 % of the production of family plantation, ie. 700 tonnes (assuming that production felt to 1000 tonnes in 1993). Thus, Between 2000 and 3000 tonnes of cocoa find an outlet on the tablea market.

d)The surveys conducted in December 1993 also gives an initial estimate of tonnage, with a large margin of error[13]

[11] A glass of chocolate is prepared with at least 3.3 grammes of tablea, corresponding to 4.7 grammes of beans : 4.7 x 5,000,000 people x 300 days = 7,050 tonnes.

[12] With compensation taking place between family farms on which cocoa had been abandoned and new plantation being created on the pioneer front of Mindanao.

[13] Figures for trading volumes are very difficult to obtain from middleman. This is a general rule, to which exception may be found, but very few in the Philippines !. The figures given are to be considered as hypotheses.

Tablea trade studied in the following towns and villages	Tonnage estimate	Origin	Destination
Cagayan de Oro	500	90 % from Davao 10 % from Bukidnon	80 % to Visayas 20 % to local
Gingoog	200	100 % from Davao	100 % to North Mindanao
Bituan	200	100 % from Davao	40 % to North Mindanao (Surigao del Norte) (Agusan del Norte) 60 % Visayas
Mackiankang	15	100 % from Davao	20 % Manila 20 % Cebu 60 % Mindanao
Sawata/Monte Duale Surrounding villages	1000	Local production	70 % Davao 10 % Tagum and diverse 20 % Visayas
Tagum	100	Sawata and other villages	33 % local 33 % Visayas 33 % Davao

Even in Davao, at heart of the network, it was impossible to estimate the quantities being handled by the dozed or so middlemen and the few big buyers such as SERG, a society buying supplies for its factory in Luzon. Some of the beans, perhaps about 30 %, seems to be taken by factories based in Luzon. But most are re-exported from Davao as unfermented beans towards Cebu, other islands of the Visayas and Luzon for tablea manufacture.

Several other less important zones of production have yet to be studied in Davao del Norte, Davao del Sur, and Davao Oriental province. It would also be appropriate to estimate the low production and auto-consumption in all regions to which access is difficult, of which there are many in Mindanao.

Even though the production of the family plantation has seriously declined in some villages, it seems certain that it was more than 1000 tonnes in 1993, that it can pick up again, and that its main outlet is on the market for tablea. The slump on production in 1993 has been condusive to revealing the strength of the demand. A village like Mackiangkang (Agusan del Sur Province), in which cocoa production has almost disappeared following the attacks of the pod borer, continues to buy beans in order to make tablea. These are sold locally and to buyers from the Visayas and Lozon.

At this stage in the survey, and with the figures available, 3000 tonnes is a plausible estimate of the amount of cocoa supplying the tablea trade. It is also possible, and even probable, that apart of the imported cocoa feeds into this sector and further boosts consumption. This hypothesis explains how tablea consumption has been maintained during the 20th century, even before the boom in the 1980s. Could the many small garden units of every family farm supply enough cocoa to cover the demand ? This is one of the points to be investigated, which could double the estimated consumption of tablea.

MARGINS

Beans

Indication to the buying and selling prices throughout the course of the network for december 1993, are shown in Figure 1. These price are for selected beans, after the smallest ones have been removed. All the prices and margins calculated here are for "selected" beans (5 % beans removed because too small, broken, too mouldy...) and dried to 7 to 8 % humidity.

As for the quantities concerned, unit margins are difficult to calculate. Apart from the reluctance of the intermediaries to reveal information from which their income could be calculated, sevaral bariables complicate data collection.

As in many trade, the buyers set different qualities and different prices. But the definitions and standards of quality are imprecise, established more or less depending on the size and the appearance of the beans. Prices can vary from one week to the next, depending on the relation between the intermediaries, whether they are pledged to creditors or independent, whether they are of the same family.

The gross margin of each middlemam or each "stage" seems to vary between 1 to 4 pesos/kg cocoa beans. These margins appear big but can be explained by the small quantities sold, prices being pushed higher by transport

costs, since the buyer often fetches batch of cocoa him self. The poor state of the hill tracks between the village and Davao also contributes to increasing the gross margins of the first stage of the trade.

On the basis of a few bags of cocoa carried on the roof of a "jeepney" (local buses), the journey from Monte Duale and Tagum (50 km) costs between 0.5 and 0.6 pesos/kg. Between Sawata and Davao, the price varies between 0.6 and 0.8 pesos/kg. The poor state of the tracks between Monte Duale and Tagum explain these costs.

In Bituan, in the North of Mindanao, 4 brothers and sisters control the cocoa trade. One brother-in-law says he buys 200 to 500 kg of cocoa each week at 22.50 pesos/kg at Tagum, paying o.65 pesos/kg for the transport (for 250 km, on the basis of 40 pesos/60-65 kg sack). This cocoa is resold 26 pesos/kg on the market on Bituan by his brothers and sisters. The gross margin, 3.5 pesos/kg, seems high. Taking into account that a member of the family travels with the beans, the net margin, split between at least two members of the family groups, is of 2 to 2.5 pesos/kg, ie. 10 - 15 % of the price paid to the producer.

In comparison, the net margin of middlemen trading in cocoa in Sulawesi varies between 5 - 6 %, but they often sell by batch of 500 to 5000 kg.

Between the producer in Sawata and the final buyer in Gingoog or Bituan, the gross margin, split between three middlemen on average, varies between 8 and 12 pesos/kg for an initial price of 18 to 20 pesos/kg. When the last stage at Bohol is added, the gross margin appears to be able to reach 15 to 18 pesos/kg. The producers from Sawata thus get 50 % of the price paid by the last buyer. For a product that is relatively easy to transport like cocoa beans, these margins seem high. Are the net margin and the number of middlemen to be held responsible for this ?.

In spite of (loose and complex) family ties and agreements between the middlemen, it seems that competition is guaranteed at each stage. The primary explanation for the high margin is found in the small quantities transported. The market is active and permanent all year round, but concerned with a few sacks of 60 kg at each trip.

There exists perhaps a lack of conpetition for the maritim transport between Mindanao, Cebu, and Luzon. From Davao to Manila, the freight transport, including insurance, is 125 pesos/kg, ie. 46 US$/tonne. This is high compared with international maritim freight from S.E Asia and is probably

indicative of an oligapoly. But the unfavorable comparison with local transport is fairly general. For example, the cost of maritim transport from Ujung Pandang (South of Sulawesi - Indonesia) to Norfolk (USA) has fallen between 100 US$/tonne, but a single trip from Ujung Pandang to Jakarta is still about 40 US$.

* **An industrial outlet** : tablea represents the local form of the cocoa mass produced by the industrial units before its separation into butter and powder. Some industrial units therefore be interested in the "tablea" trade. It seems that, on Luzon there is at least one factory producing several hundreds of tonnes of tablea per year from beans bought on Mindanao, bought mainly from corporate plantation. This clearly indicates that there is still much tablea eaten on Luzon and not only on the island around the Visayan Sea. The importation of beans (through St. Fransisco del Norte, Luzon) may play a role in this industry.

* **Conclusions : National market and exports:** When a kilogram of cocoa produced in a family plantation reaches Davao, it costs 24 pesos (1993), ie. 0.88 US$/kg. When packaging and export costs are added, this means that this cocoa is exported at an FOB price of 1100 US$/tonne from Manila. Given the small quantities, and the nature of the beans, small and unfermented, this cocoa is probably sold with a below par rating similar to the cocoa from Sulawesi, which is at least 100 US$/tonne under the standard for the New York terminal market. Considering the transport costs of FOB to CAF, the export price of these beans should be about 250 US$/tonne under the New York price. In the first half of 1993, New York price hit their lowest level with average monthly prices of 900 to 950 US$/tonne, from which a theoretical FOB price of 650 to 700 US$/tonne can be calculated for cocoa exported from Davao or Manila. 400 US$/tonne more is required in order to make this cocoa competitive in the international market. Even if the deficit in the international supply relative to the demand is confirmed, even if in the second half of 1993 prices leapt to 1200 or 1300 US$/tonne, even if production costs on family farms are lower than on corporate plantations, the most outlet for this cocoa is the home market.

Turning to the corporate plantations, their production costs of 28 to 30 pesos/kg excluded any possibilty of exportation before international prices rise to between 1500 and 2000 US$/tonne. The international market will probably return to this level in about five years time, but by then very few of the corporate plantation will still be growing cocoa.

In short, there is no longer any reason to export, and as a logical consequence, exporting has stopped. When the international prices stagnates at 850 US$/tonne in New York, implying an FOB price of 16 pesos/kg when

leaving Davao, the price remains about 22 pesos. In Manila, whilst Malaysian or Indonesian cocoa can be imported at 23 pesos/kg, the corporate plantations still ask 28 pesos/kg. When the international price is at 1000 US$/tonne, making imported cocoa rise to 27 pesos/kg, the price proposed to the corporate plantations of Mindanao is 30 pesos/kg. Now the costs of producing on a family plantation is between 13 - 18 pesos/kg.

It is in the interest of the Philippines to maintain a small production of cocoa for their home market, in order to limit importations. It is in their interest to be attentive and support the small family farms, in particular for the tablea trade, since it is the demand for tablea which helps to keep the prices high.

Tablea and beverages

The cottage industry related to the tablea and the services linked to the preparation of drinks generate profits and jobs. The surveys give some indications to the added value but also show up the variability of the tablea product.

Although the method of making tablea is easy, the ingredients few and the packaging rudimentary (a plastic film), different qualities exist, and the commerce deals with different quantities and weights. We have found a weight range of 3.30 grammes to 14-16 grammes per tablea, sold individually or in a bands of 6 to 25 pieces, according to the region or trader. The differences in quality, due to beans used, fineness of the paste, and eventual impurities added to it, are more difficult to judge at purchase. As for the trade beans, the net margins made in the tablea obviously depends on quantities sold on the market. There is therefore no standard tablea product, and the question of added value can only be approached through the use of examples.

Cagayan de Oro: after alight raosting and grinding, 1 kilogramme of beans bought at 29 prsos gives 700 to 800 grammes of paste, prepared and marketed in the form of 7 to 8 bands of 12 "tablea". Each band is sold at 10 pesos. Retail, each tablea of 8.30 gr, is sold at 1 to 1.25 pesos. If the production of 7.5 bands is sold at 11 pesos/tablea, the revenue from the sales will be 82 pesos. The costs of grinding, subcontracted to a self employed worker, varies between 2 to 4 pesos. Even assuming at costs of 4 pesos/kg, and taking away every 1 pesos for plantic bags, wood or fuel for roasting the beans, the gross margin would be 48 pesos/kg or more. Assuming labour costs of 15 to 18 peos/kg (USM 1989, Ardhy 1994), mainly for roasting and sorting the nibs from the shells, a large net margin of 29-35 pesos/kg is left, representing slightly more than 100 % of te cost invested in the operation. This margin, made on the

Cagayan de Oro market for local consumtion, is for small quantities, about a ton a year, for each processor.

Mackiankang: This village is reputed for the quality of its tablea, made with a fine paste resulting from two successive grindings. From one kilogramme of cocoa beans only 700 grammes of tablea are obtained. These are in part marketted by sales networks which trasport them to Cebu and Manila, General Santos, Surigao.... seven to eight tonnes of beans are treathed annualy by each of the two factories[14]. Prices of tablea weighing 8 to 10 grammes on average is sold in bands of 12 at a wholesale price of 7 to 8 pesos/kg has its value increased to 54 pesos/kg, leaving a gross margin of about 23 pesos/kg, and a net margin of 5 to 8 pesos.

Retailing is carried out by several small shops in every village, with profit margins varying according to the ways and which the products are displayed. The risk is to reduce the price in comparison to the competitor by selling tablea of different size or quality. For example, in Balingoan, on a single market of a small village between Cagayan de Oro and Gingoog (inhabited by migrants originating from Bohol who are heavy consumers of tablea) we found margins varying from 1 to 2.5 pesos/bound of 25 tableas. One shopkeeper buys 25 tablea at 15 pesos and sells them for 22 pesos. The quality is not quite the same, and there is a 10 % weight difference (11.7 and 10.7 grammes per tablea). In both cases, the quantity sold is about 100 bounds a week. The unit margin for the local sale of tablea equivalent to a kilogramme of beans varies between 2 and 8 pesos. In terms of weekly net margins, 250 pesos/week is the best that can be obtained, barely 10 $.

At the end of the line is the person who prepares and seels the drinks made from the tablea. Among the different type of the drinks prepared, one incledes the alcohol obtained from fermenting coconut milk and a raw egg yolk. It is such a stiff drink that we were unable to appreciate the added value of the mix. The most common beverage is still the one described in the introduction, sold at about 3 pesos a glass, with a great variation in quality, according to the quality and concenration of tablea (1 piece for one to three glasses), the sugar used, the quality of the whisking for producing the froth,.. Using W. Ardhy's (1994) calculation, the gross margin can be estimated at almost 300 pesos/50 tablea (10 grammes of each piece), that is the equivalent of 400 pesos/kg beans

[14] Of which one in a coperative, actively supported by one of the protestant churches, firmly established in the villages of migrants from the Visayas and well known for its activity in the social, economic and political fields. In a way, the mix of cocoa and religion continues....

and 2 pesos/glasses.

To resume, the cocoa trade is still active and well integrated with all processing and the marketing services. Margins seem a bit high sometimes, especially at the first stage of the trade due to the ties of credit and barter. It is nevertheless service. In order to reduce margins to the advantage of the producers, they themselves will have to organize their own services of supply and credit. In this way they could develop processing activities, define quality standards, and take over part of the commerce in Mindanao and outside Mindanao: common and difficult problems of development, a vast programme, which against technical could come up problems from the start.

THE PROBLEM OF BEAN FERMENTATION

FERMENTATION AND BEAN "QUALITY"

All the treatises on cocoa technology mention the necessity of fermentation; 4 to 7 days according to the variety, the country, and the manufacturing and consumption tradition of the importing countries. This fermentation allows certain flavours to develop, and contributes to the production of a quality chocolate, at least by European standards. However, Stessels (1994) draws attention to the fact that "the flavour develops in two phases, firstly during the preparation of the cocoa by the producer (curing), and later during the roasting by the chocolate maker; it is immossible to obtain a good flavour in a single phase".

Some industrialists seem to get by without the flavours of the first phase. Not far from the Philippines, the provinces of South and South East Sulawesi sell more than 200,000 tonnes each year on the American market. The cocoa of "good quality" is often the cheapest....in this case, the American importers are not concerned with the flavour but look for a butter of "good quality", a hard butter with highest possible melting point. In terms of their demand for beans, their needs contrast with the needs of the European market : large tolerance of the amount of slaty beans, reject of mouldy beans. At least for the character "hard butter", the commercial reasons are obvious, especially for the chocolate bars for which the chocolate part is just thin outer coating.

This difference between the needs of the American and European industries demonstrates that the notion of "quality" is debatable where chocolate is concerned. Simplistically, it could be said that there are as many quality standards as there are users. Although the criteria for fat maltes content and butter hardness are objective, quantifiable and clearly quantified by the market

and their price differentials, the situation is quite the oppisite for flavour.

On the home market in the Philippines, the demand for beans on the tablea market is for unfermented, or very slightly fermented beans. To the extent that the tablea is very close to the final product, the beverage, this demand for unfermented beans raises some questions. The Philippines consumer "should" be more sensitive to the flavour of his "chocolate" than the American consumer of "chocolate bars". How can this demand be explained ?. We shall see that the local market faces similar problems to those of the large international groups.

Fermentation and the Melting Point of Chocolate

Many middlemen face their demand for unfermented beans without themselves understanding what it is about. In Cagayan de Oro, a middleman buying beans on behalf of buyers in the Visayas purchases a small part of his stock from the MENZI plantation (100 ha. plantation of cocoa). These beans sold to him by MENZI are those they have not been able to sell to Nestle because too small, mouldy or poorly formed (due to the attack of the pod borer). They have however been fermented, in contrast to those produced by few surviving family plantations in the region of Bukidnon, and of course, unlike those produced on the family farms in the region around Davao. This fermentation is troublesome to the buyers in Visayas, and the middleman transmits this information to MENZI, without fully understanding it. He asks for "sun dried" beans, confusing, as many people do, the questions of fermentation and drying. The confusion is understandable since on the family plantation the cocoa is unfermented and sundried, whereas on the corporate plantations it is fermented and dried artificially (diesel or woodfired dryer). The confusion is even more understandable since there is a direct relation between the possibility of drying and the possibility of fermenting before drying. There is a relationship between not fermenting beans and climate. Once again, it is necessary to understand this relationship before trying to persuade people to ferment their beans, or others not to ferment them.... Why does the tablea trade look for under fermented beans ?,

From *Criollos* to *Amelonados* and *Upper Amazonians*.

The first cocoa varieties used for tablea were Criollo. These produce a very fine flavour-rich cacao, which do not need to be fermented. Later, Amelonado and Upper Amazonian varieties were introduced, and although these varieties are of poorer quality, needing a fermentation in order to bring out the prinsipal flavours, the habits developed with Criollo persisted. This is only one

hypothesis, but, if confirmed, it could only be of secondary importance to the following problems.

Risk during drying.

In South East Asia, the climate with no marked dry season can be a boom to yields but is handicap to drying. This operation, which posing no particular problem in West Africa, is more complicated and risky in S.E. Asia. As soon as the sun comes out, the cocoa grower puts his cocoa out to dry. He does not want to risk waiting. Many observers, including European professionals, who demand fermentation do not understand that in this part of the world, fermentation increases the risks during drying[15].

The corporate plantations get round the problem by using artificial dryers, heated by wood or diesel ovens. Apart from the increase in cost, These procedure have the drawback of increasing the activity of the beans. Although artificial drying seems "modern", it is too rapid and is the main cause of the high bean acidity produced by the large plantations of S.E. Asia. Sun drying, as used on family plantation, although seemingly "archaic", produced a cocoa of better quality on the criterium of "bean acidity".

Bean Apparence and melting point

There are two main risks associated with fermentation. Bean appearance and melting point. Apart from the risk of missing the sunny spell and so prolonging the drying periode, fermentation makes the beans more sensitive to mould development.

Fermented beans can not be dried keeping a "proper" look : they go mouldy. The photographs show (plate 7) that after two days of drying unfermented beans are a good rust-brown colour, whereas the fermented beans are blackish-brown. This appearance may not bother a buyer for Nestle, but it will be unacceptable to the tablea market.

More important than the appearance of the beans, fermentation seems to affect the characteristics of the tablea. The melting point is lowered. Tablea manufactured from "well fermented" beans melt at a slightly lower temperature than those made with unfermented beans. It is very likely that this modification

[15] The same problem is posed in Indonesia, where the production amounts to almost 200,000 tonnes (cf. Faivre, Ardhy and Ehret 1993, Ruf and Faivre 1993, Ruf,1993).

is associated with the loss of dry matter during fermentation.

To sum up, the same characteristics of non-fermentation are sought by the local manufacturers of tablea and certain industrial chocolate manufacturers in the USA: few mouldy beans, as hard a butter as possible, (and low importance given to amount of slaty beans).

What are the consequences of this for producers of Mindanao ?

INTERNATIONAL AND DOMESTIC TRADING CHANNELS

The Nestle[16] group, in coperation with agricultural advisory services, has started up a cocoa project in Sawata, in the region of Davao. The project intervenes methodically in all the essential fields :

* Technical, with advises from an excellent engineer.
* Logistics, with assistance towards supplying inputs.
* Finance, with the services.
* Economics, with the setting up of a trading post at Davao, with the intent of giving better prices than those of middlemen.
* Organisation, with strong assistance and incentives for organising the producers unit groups.

If a group such as Nestle esteems it useful to intervene in the main region of family plantations, even it does so on a small budget, it is certainly not because it is anxious to please. Beyond the possible minor import taxes, it is in their interest to be at least partially independant from imported cocoa, maintaining part of their supply from the Philippines. However, the group already has a suply of several thousands tonnes from the corporate plantations. So why the project with the family plantation ?

[16] Remember that, in the Philippines, the Nestle group owns two factories using cocoa as a raw material. These factories are in Luzon, unlike its coffe factory, which is in Mindanao.

TWO TYPES OF PRODUCER FOR TWO TRADING CHANNELS

In 1992-1993 Nestle was offering 35 pesos/kg (1.30 $/kg)[17]for grade "A"[18] cocoa delivered at the Luzon factory by the corporate plantations. Taking into account transport costs from Davao to Luzon of about 1.25 pesos/kg, this price corresponds to 33 pesos/kg when leaving the plantation. For grade "B" beans, the equivalent price is approximately 30 pesos/kg. Although it must be taken into account that the a proportion of the beans is rejected, these prices are higher than those of the international market, placed at about 25 pesos/kg during the first half of 1993. These prices reject tax incentives by the government and a certain effort on the part of the Nestle group to guarantee that part of its supply comes from within the country.

The corporate plantation assert that when they maintain intensive husbandry techniques in their plantations, 80 % of the beans produced are accepted by Nestle. Plantation maintenance has an effect not only on yield but also on bean quality, and since it has been reduced, the part sold to Nestle has fallen to 60 %. The remaining are directed towards the tablea trade, through middlemen. The result of this is simple, foreseen by L. Oliva (1993) after afew visits to plantations: the reduced maintenance on the large plantations, a consequence of the slump in international prices (in spite of adjustments made by manufacturers based in the Philippines), leads not only to a diminution of the supplies arriving at the factories of Luzon but also to an increased flow of beans towards the tablea outlet.

Nestle, having guessed that the decline of the corporate plantations was inevitable, is turning towards family plantation. It is a sensible direction to make. However, the plan of prices offered for the required work demanded needs to be applied, because Nestle is one of these groups which needs carefully fermented beans. For the family plantation, its a new technique and more work.

Without judging the success of the project in advance, it has the means to succeed, but is faced with a strong network of middlemen, its objectives for change are rather appealing. In pursuing its logic, the priveledged relationships

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[17] Unless indicated otherwise, all prices cited here were noted in December 1993, at a rate (official and black market similar) of about 27 pesos/$.

[18] The grades follow classical rules, based mainly on bean size:
Grade A: 110 beans or less for 100 grammes.
Grade B: 110 to 120 beans for 100 grammes.
Reject : more than 120 beans for 100 grammes.

"corporate plantations-modern factory" and "family plantation-traditional consumption" would be broken and inversed. The family plantations would supply the "modern" consumption whereas the corporate plantation, if they survived in the cocoa sector, would turn to the outlets towards traditional consumption. Although this development is just beginning in 1993-1994, it has the merit of demonstrating that, faced with the market crisis, it is family farms which have the greater capacity to maintain supplies.

THE RELIANCE OF FAMILY PLANTATION

In 1992-93, Nestle offered a theoretical price at its trading post of 29-30 pesos/kg for beans dried to 7 %. This is a theoretical price because it is associated with a selection of beans according to size, the quality of fermentation measured by the proportion of slaty (under fermented) beans, acidity, and other diverse criteria. Theoretically, an average batch brought by a producer or group of producers is devided into three types:

Fermented cocoa (7 % moisture)	Price paid at the trading post (50 km from Sawata)	Equivalent price at Sawata, Monte Duale (function of transport and handling costs for small quantities)
10-20% class A	32 pesos/kg	31 pesos/kg
20-60% class B	29 pesos/kg	28 pesos/kg
20-40% rejects	---	---

As seen earlier for the corporate plantations, the proportion of beans rejected partly depends on plantation maintanance. There is also a negative correlation between the proportion of defective beans and the age of plantation. This explain why at Monte Duale, 10 km from Sawata, remote in the mountains, the young plantation produce only 10-15 % defective beans, whereas the plantations of Sawata, already 15 years old, may produce 30-40 % [19].

[19] This correlation is indicated by both producers and buyers, the latter attentive to the movements of the pioneer fronts in order to send their lorries as far as they are able to go, and collect the lagest possible beans.

Faced with these propositions, for the same campaign, Sawata's middlemen often accept cocoa of 12 to 15 % moisture content, with a comprehensive price of 15 to 17 pesos/kg. When the moisture content is brought down to 7 %, the prices are approximately:

	Price at Sawata
unfermented, unsorted beans 7 % moisture content	17-18 pesos/kg (20 pesos/kg after storing)
fermented beans rejected by Nestle.	8-9 pesos/kg

The trading channels for tablea thus devalue fermentation. The local trade does at least accept these beans rejected by the group representing one of the European standards, but it does so at an even lower price that it would have proposed for fermented beans.

The average price of a kilogramme of dry beans can thus be estimated as follows:

Prices of the Nestle group	10 % * 32 pesos	3.2 pesos
	60 % * 29 pesos	16.4 pesos
	30 % * 9 pesos	2.7 pesos
Price given Davao		22.3 pesos/kg

Although the difference appears significant, 22.3 pesos per kilogramme in Davao is not sufficient inovation for a producer in Sawata who can obtain 18 pesos/kg in his village. For producer in Monte Duale , with only 10-20 % beans rejected, price are more favourable, in spite of the transport cost of about 0.75 pesos/kg from Monte Duale to Davao[20].

Thoses difficulties can be explained. Middlemen are living close to the

[20] Cost calculated with the means of transport used by the producers, the "jeepneys" local buses, which charge 40 pesos/85 kg sack for Monte Duale to Tagum, then renting per 4 tonnes load between 400-500 pesos, for Tagum to Davao. If the jepney is really loaded up to 4 tonnes, the theoretical cost falls to 0.62 pesos/kg. For a trader who owns his own means of transport, the cost of transporting directly from Monte Duale to Davao should fall to 0.30 pesos/kg (0.20 from Monte Duale to Tagum and 0.10 from from Tagum to Davao).

smallholders. Some of then used to be smallholders before turning middlemen or middlemen-farmers. They pay cash, deliver and sell foodstuff and varioous goods and above all, build up bonds of frienship by selling these things on credit. Often, the exchange of goods involves no money transfer, but consists in bartering the cocoa for food, a petrol lamp or other household goods.[21]

The trading channels are therefore in competition, which is translated into efforts towards better price on the part of the Nestle group, but which is not enough. The problem is partly due to the fact that two different and mutually exclusive products are being sought - fermented beans and unfermented beans.

In addition to the proposition of working with the producers towards the selection of new cultivars plant material on the criterium "beansweight per pod", the main aim of the project concerns processing and marketing. The first objective would be to do away with the exclusivity of the trading channels and giving the cocoa growera or more flexible choise and by increasing the range of products acceptable to the tablea outlet.

A PROJECT FOR TABLEA ?

Reflection on a project for tablea can be split up into two or three component parts, from the practical problem of cocoa butter melting point to the search for new markets, by the way of an organisation of tablea producers and improving information on prices between the producer of Mindanao and the buyer of Cebu or Bohol. The chronology of such a project would follow the order of propositions, For the sake of simplicity, the chocolate factories based in Luzon will be refered to as the "modern" sector, and the tablea trade refered to as "traditional", without implying that the latter is not modern.

1. PRIORITY : BEANS ACCEPABLE TO BOTH SECTORS

The prinsiple is simple. The families of producers can profit from the modern sector which is aware of the decline of the corporate plantations. To make the best profit, the rejects from the modern sector must not lower the prices in the traditional sector. For this, both sectors must use the same product. Fermented beans must therefore be made acceptable, or even desired, by the tablea sector. From the aspect of flavour, it is clear that such a change would be beneficial.

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[21] A typical barter economy as still exists for coffee in Madagascar (Blanc-Pamard and Ruf, 1992)

The main problem is to raise the melting point of the tablea in order to limit the risks incurred during transpot and sale. One of the cocoa growers at the lead of the Sawata groups, Mr. Vicente Orosa, retired engineer, is seriously considering this problem. He thought of creating a "new" product incorporating 20 % molasses. This solution should be rested even if the price of mollasses is 20 pesos/kg, which limits the economic interest of the project. Other solution should also be tested. It is not only a question of "development" or "extention". The USM has already worked well in the manufacture of tablea (USM, et al, 1989). But research work is needed on this question on fermentation and melting point, reseach drawing together the specialists of USM, PCARRD, CIRAD (if cooperation can be extended in the cocoa sector) and, of course, the producers and even the buyers of the Visayas and Luzon.

2. ORGANISATION OF PRODUCER GROUP

From our survey in December 1993, it can be seen that the middlemen make large margins and the added value created by the manufacture of tablea is high. Between the producer price of 17-20 pesos/kg in Sawata and the final price of 30-35 pesos/kg in Cebu, three middlemen share a gross margin of 12 to 15 pesos. These margin can in part be attributed to the small quantities sold marketed, to the lack of communication and hence the lack of information between the producer of Mindanao and the consumer in the Visayas or Luzon.

In spite of the usual difficulties in forming producer groups faced with the strength of the network of middlemen, and although the latter after services (supply, transport, credit), the organisation of cocoa producers and tablea manufactures (which could develop productive groups) has economic potential. In order to bring these partner together, assistance is required for them to make contact, envest in tablea manufacture and in the improvement of communications with the main buyers, notably in the Visayas.

3. THE SEARCH FOR THE EXPORT MARKET ?

Export markets already exist with the Philippino communities in Hongkong, Singapour, and the Middle East. If the first problem can be resolved, these markets could then be developed, provided quality standards and packaging are improved. In the city-states sited above, a "deluxe" market could be created (similar to the trade in "tropical product" in Europe) aimed at the image of traditional products, evoking the culture and history of chocolate, associated with the history of the Philippines. As P. Cardinal has suggested, a "tablea mixer" could be envisaged, guaranteing a real 17 th century chocolate! The old recipes which include vanilla, cloves or other ingredients could create

different types of chocolate with prestigious names, taken from the story of the passions for chocolate....

Beyond the dreams and image, there really is a project for agricultural, cultural and commercial development, of which the next step could be a mission associating an economist and a chocolate technologist. The priorities of this mission would consist of gaining a better understanding of the sector, especially in the Visayas and Luzon, and to ascertain whether the fermentation of cocoa beans really is a dilema for the tablea sector.

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Annex 1

Descriptions of chocolate consumption in teh 17th century

There is get another manner to use it, which is practiced mainly on the Island of Santo Domingo, which in to put the chocolate in a bowl where there is a tap, with a little water and enough sugar according to the amount of chocolate, and then to boil it until it makes a rich head of froth, and then drink it.
There is get another manner to disnk the chocolate cold, that the Indians serve in ...

But the most usual manner is to heat the water, then to half fill the cup from which one wishes to disnk, and dissolve one or two tablets in it, or more until the water is thick enouth, then to stir it well ; to fill the cup with hot water, and to disnk it after having added as much sugar as necesary, and eat a little preserve or marzipan dunked into the chocolate.

Sources : DUFOUR 1688 and DE BLEGNY 1687 cited by BOURGAUX 1935

Annex 2

Bean weight per pod according to cultivar - Brazil, 1914

Variety	Number of pods required to produce one kilogramme of dry beans
Maranhao rugoso	31 to 32
Maranhao liso	23 to 24
Para	23 to 24
Commun	20 to 21
Maranhao liso (selected large pods)	18 to 19

Reference : Observations ZEHNTER 1914 p.41-45

N.B. : For the hybrids most commouly distributed during the 1980s, cocoa growers in several African and Asian countries acknowledge that between 25 to 30 pods are needed to produce 1 kg of cocoa. It seens that very little technical progress has been acheived with this character during the course of the 20th century.

Plates 1 to 8

Plate 1 : a) Corporate plantation of 100 ha (above)
b) Cocoa tree on a family plantation ; Protection against the pod borer using plastic bags.

Plate 2 : Corporate plantations and their investment in post-harvest operations : rotary dryers in a shed and a platform for pod opening : although giving the impression of modernism, these investments contribute to an increase in costs. No economies are made when cocoa production is scaled up.

Plate 3 : Cocoa beans and jars of tablea on the shelves, among all the articles of basic necessity, from vice or peas to mails ... Cagayan de Oro (market stall and shop), Mindanao, Philippines, December 1993.

Plate 4 : Workshop for grinding beans for the preparation of tablea, on a small holding of Bukidnon.

Plate 5 : Grinding beans for the preparation of tablea in the market of Bituan. Mindanao, Philippines, December 1993.

Plate 6 : "A glass of chocolate ?" Markets in Mindanao, Philippines, December 1993.

Plate 7 : Cocoa beans dived for 2 days.
Above : unfermented beans : good pale rust colour
Below : fermented beans : dark brown to black, related to mould, parthy due to a lack of sun after fermentation.

Plate 8 : Fermented beans, dived for three and four days ; blackened appearance, of low value in the tablea trade.

Plate 1

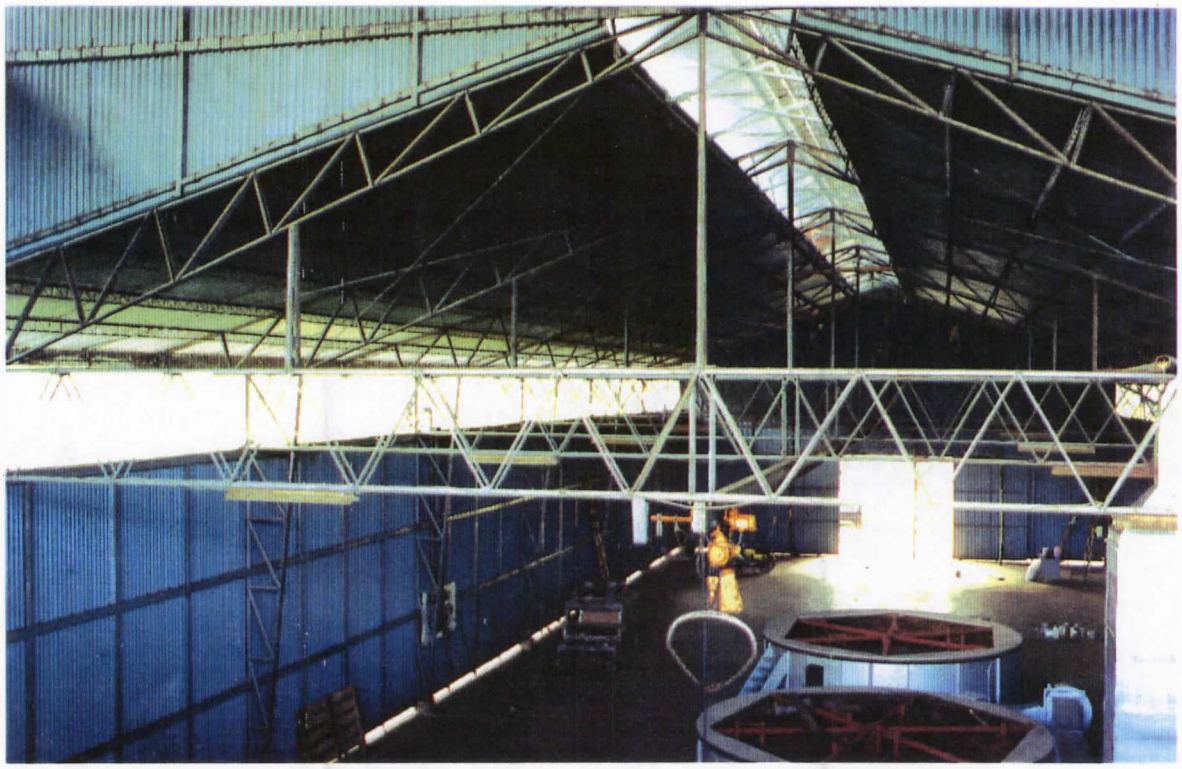

Plate 2

Plate 3

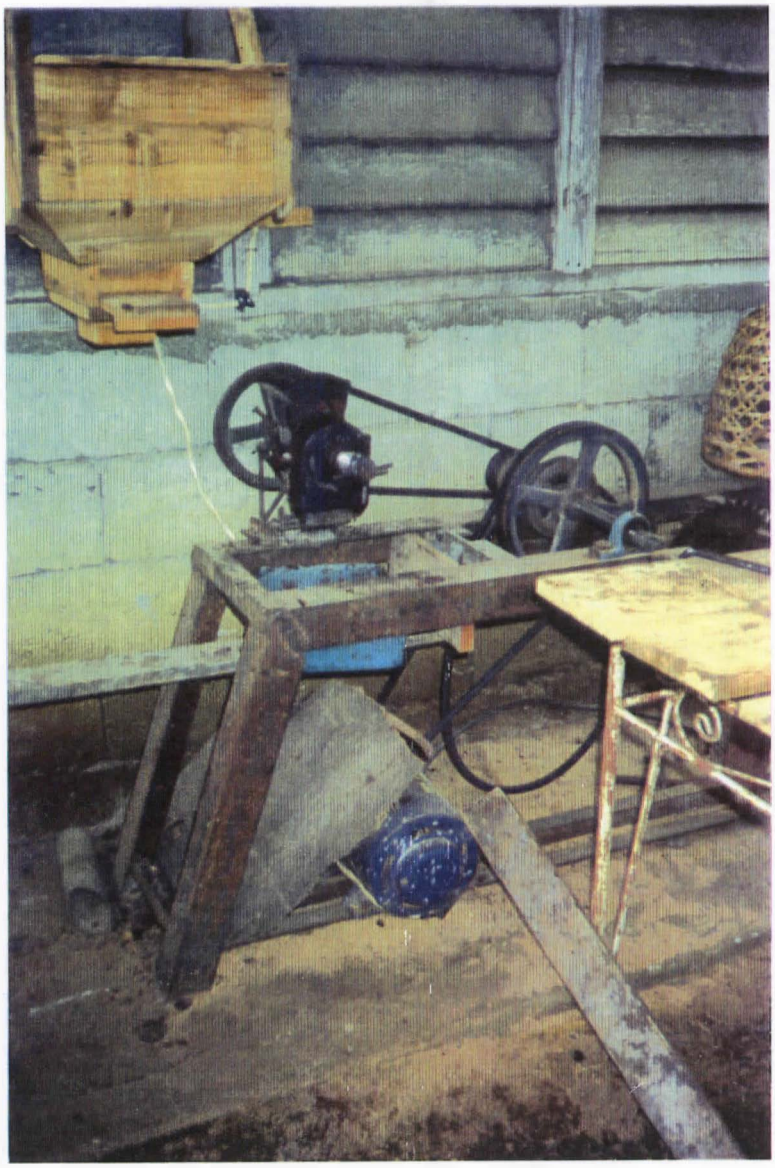

Plate 4

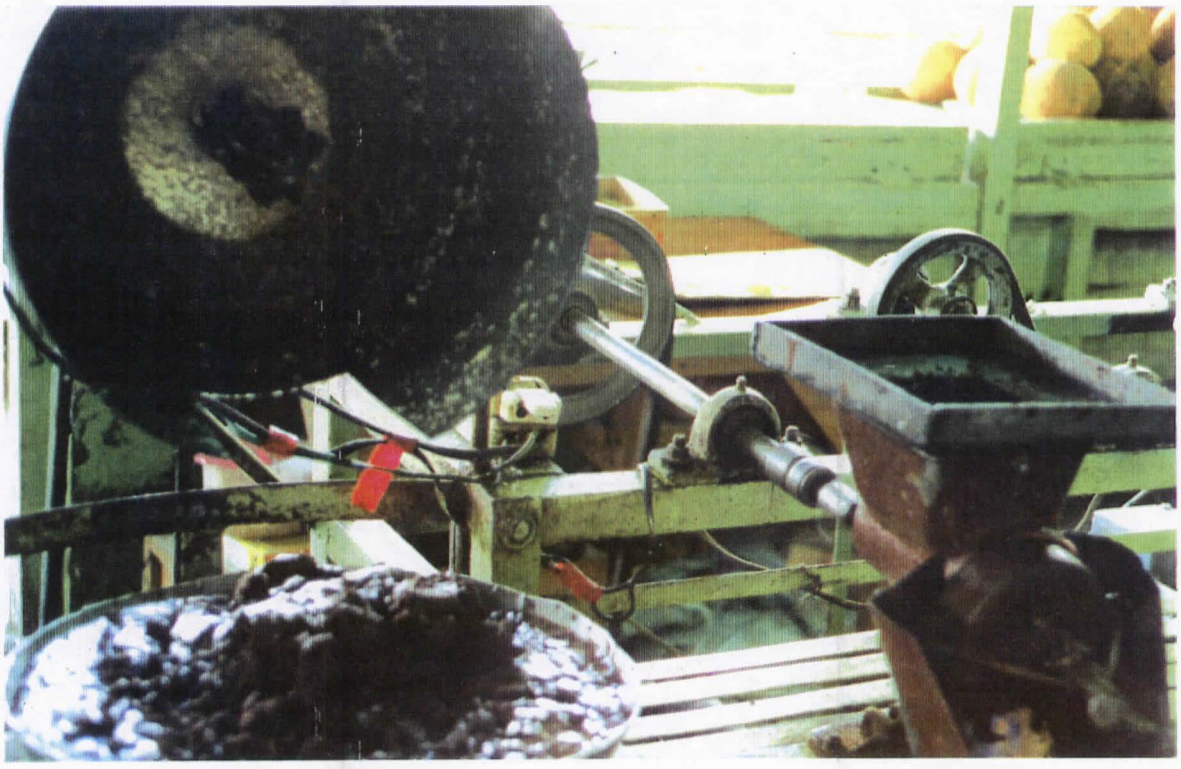

Plate 5

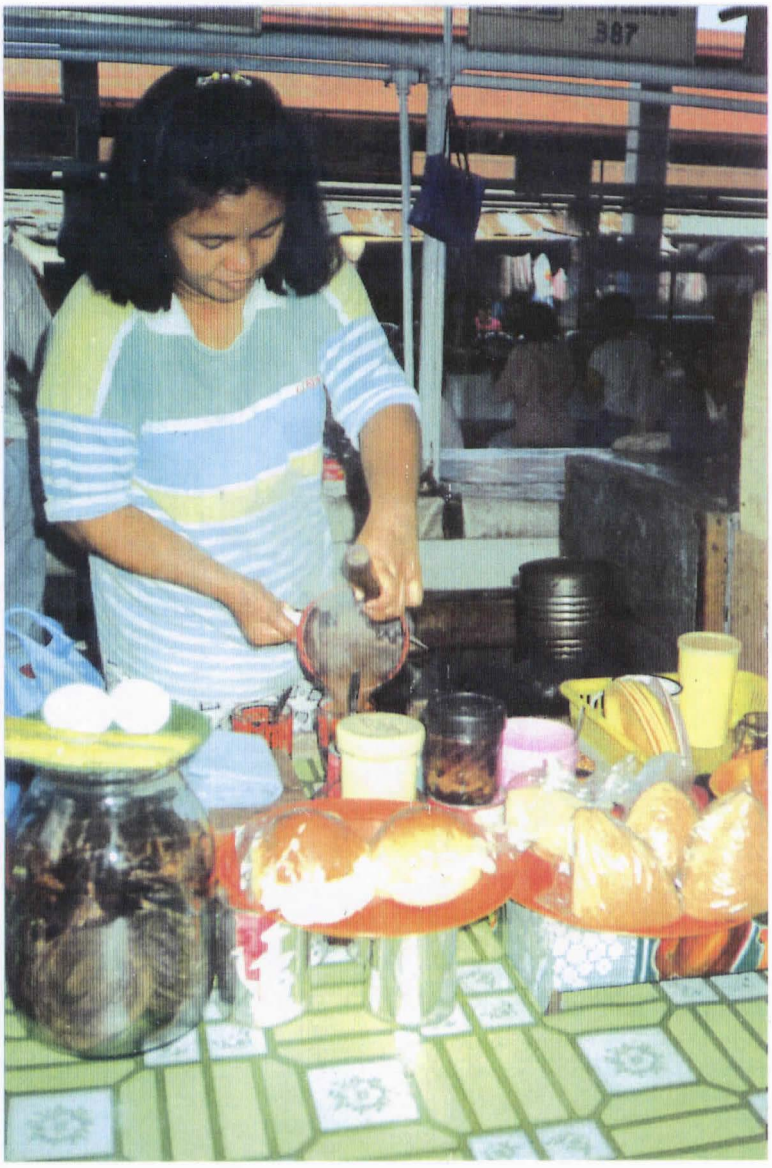

Plate 6

Plate 7

Plate 8

Annex 4

Mission Itinerary

07/12/1993 : Arrival in Manilla
Meeting with Dr Benard (CIRAD)

08/12/93 : Leave Manilla for Cotabato
Welcome by Dr Cabangbang
Discussion with USM counterparts
Dr Cabangbang
Dr Lydia Oliva,
Meeting with the management of USM
Dr Kundo PHAM, president,
Dr Bautista, vice president.

09/12/93 : Cotabato-Cagayan de Oro via Bukidnon
Visit smallhoders'cocoa farms in Lourdes; Mr Enmas.

10/12/93 : Survey of *tablea* trading network, from the small market traders to the bigger traders working with buyers in the Visayas.

11/12/93 : Visit Menzi Agricultural Corp. (South of Cagayan de Oro). Meeting with Mr. Loreta V. Alzata.
Visit plantation and processing unit with Mr Willy Sulit.

12/12/93 : Cagayan de Oro - Gingoog via Balingoan.
Visit tablea producerts and traders.
Visit local traders in Gingoog.

Gingoog - Bituan
Tablea network and cocoa traders, survey in Bituan.

13/12/93 : Bituan - San Francisco via Bayugan and Magkiangkang.
Bayugan : interview with cocoa traders.
ICA rubber Dept. Corp.
Contact with the mayor's deputy
Contact with extension services in Magkiangkang
Interviews with small holders and *tablea* producers.
Visit farms of "remaining cocoa trees"

14/12/93 : San Francisco - Tagum via Trento (Agusan del Sur) Langkilaan :
Contact with extension services in Trento
Visit small holding.

Arrival at Tagum
Contact with extension services in Tagum

15/12/93 :	Visit Sawata area (Davao del Norte), the main cocoa producing area. Interviews with cocoa smallhoder and trader. Visit cocoa farms
16/12/93 :	Visit Davao traders and exporters.
17/12/93 :	Visit Twin River Research Centre and HIJO Plantations Meeting with Dr A. Navarro and Dr J. Flores Visit Basalan area. Smallholders' interviews Departure to Cabacan
18/12/93 :	Cabacan-Tagum New interviews and visits to cocoa farsm in Sawata end Monter Duali. Interviews with Traders in Tagum
19/12/93 :	Tagum-Basalan-Cabacan Meeting with Mr Rolalio Batal
20/12/93 :	Meeting with USM President Summing up with Dr Cabangbang and Dr Oliva Summing up with PCARRD and Dr Benard Final meeting with Dr Benard
21/12/93 :	French Embassy in Manilla Meeting with Mr P. Cardinal and Mr C. Dutertre Departure to Indonesia.